JAWORSKI, MARK

From: Ferguson, Christopher
Sent: Tuesday, August 05, 2008 4:57 PM
To: JAWORSKI, MARK
Subject: Lane Street sample screening description
Attachments: Lane Street Groundwater Sample Screening with the Voyager portable GC.doc

Mark,

Attached is a description of the Voyager screening performed for the Lane Street event. Let me know if you need anything else.

Chris

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Lane Street Groundwater Sample Screening with the Voyager portable GC

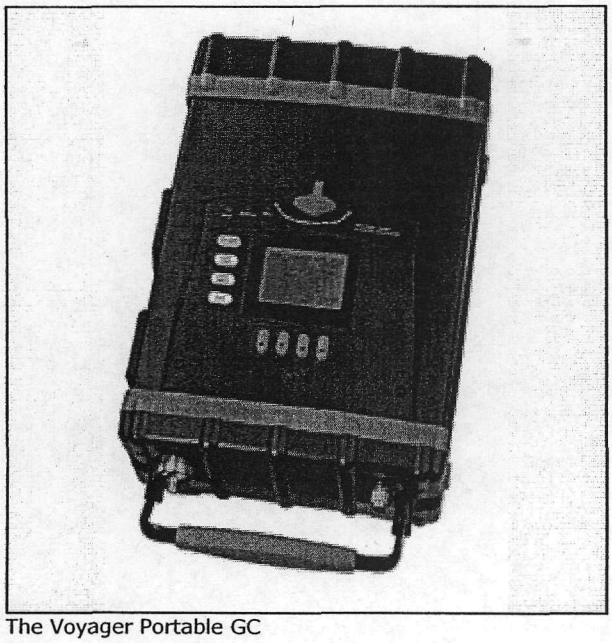
Purpose:

The purpose for screening groundwater samples with the Voyager portable GC is to provide 'real-time' qualitative screening results when multiple contaminants are known or expected. This allows for the expedited investigation into the extent of a contamination plume without having to wait for laboratory results and provides a qualitative scale for comparison of contaminated samples.

Instrument Capabilities:

The Voyager portable GC is capable of screening for volatile contaminants in the gaseous phase (indoor/outdoor air, soil gas, sample headspace, etc.). Through the use of the internal separation column(s) and comparison with established retention time calibration data, it is possible to both identify the contaminants present and to establish a relative concentration of the contaminant in the gaseous sample.

For the Lane Street sampling event, the Voyager portable GC was calibrated for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), MTBE, PCE, TCE, Vinyl Chloride, and 1, 2-DCA.



The Voyager Portable GC

Analysis Method:

The sample screening for the Lane Street sampling event was performed according to the process detailed below. Chris Ferguson, the site Environmental Chemist, was responsible for the development of the analytical method and for performing the analyses.

The sample screening process was performed as follows:

1. After the collection of the VOA samples to be sent to the laboratory, the groundwater screening sample was collected using a 40ml VOA vial, which was filled approximately 50-75% full and capped.

2. The sample was transferred to the warehouse (headquarters) along with the samples to be sent to the laboratory.

3. Upon arrival, the screening sample was separated from the other samples and staged for pre-analysis prep.

4. As a preparation method to maximize the volatiles in the headspace, each vial was heated to 35^0 C and agitated in a sonic bath for 8 minutes.

5. After the vial had been prepped, a 100 micro-liter (uL) portion of the headspace was drawn with a gas-tight syringe and injected into the Voyager for analysis. The analysis parameters were: Time = 600 seconds, Pressure = 8 psi, Column Temp = 60^0C

6. Once the analysis was complete, the results were compared to the established calibration chromatogram and the results were relayed to the Project Manager and relevant staff. Results were also recorded in a database for future evaluation and use. Total turn-around time from arrival at the warehouse to results ranged from 30 to 45 minutes for priority samples.

7. Syringe blanks were performed at a rate of ~ 1 per 20 injections to monitor contaminant carry-over between injections. No significant carry-over was observed.

8. Calibration injections were performed at the beginning and end of each day to evaluate system stability. Errors were noted for the end-of-day calibration on 16-April-08. The samples suspected to be affected were re-prepped and re-analyzed on 17-April-08.

Results:

The results from the Voyager portable GC were used to determine whether the extent of the TCE plume had been established. The Project Manager and/or Field Lead were able to use this information to affectively delineate the majority of the TCE contamination plume without having to wait for the EPA field laboratory to return quantitative data.